Particle Size and Mass Balance Calculation

	Particle Size and Surface Area Calculation (From KC)					
Class	particle radius (m)	particle diameter (um)	surface area (m2)	volume (m3)	sediment density (kg/m3)	mass (g)
1a	5.0E-06	10	3.1E-10	5.2E-16	1,590	8.3E-10
1b	2.0E-05	40	5.0E-09	3.3E-14	1,590	5.3E-08
2	1.3E-04	260	2.1E-07	9.2E-12	1,350	1.2E-05
3	5.4E-04	1,080	3.7E-06	6.6E-10	1,350	8.9E-04
Total						

Concentration Calculation

	Entering LDW (Concentration Units (e.g., ug/kg))		Exiting LDW (Concentration Units (e.g., ug/kg))	
Class	Calculation	Value	Calculation	Value
1a	Based on surface-area weighting	57	Same as entering the LDW	57
1b	Based on surface-area weighting	14	Same as entering the LDW	14
2	Based on surface-area weighting	3	Same as entering the LDW	3
3	Based on surface-area weighting	0.6	Same as entering the LDW	0.6
All (Suspended Sediment Sample)	Input	17	Mass-weighted Average	38
	QC (Mass-weighted Average)	17	Percent (Exiting/ Entering)	220%

Calculation

Equation to us
Concentration
Area / Fractior

Way to think a
Step 1. For a u
the weighted a
contaminant n
than the starti

			STM Re Calibration (From LDWG PowerPoint)					
			Mass				Surfa	
fraction of area per mass (m2/g)	foc	%OC	Entering LDW (30 year; MT)	Entering LDW (PCT)	Exiting LDW (30 year; MT)	Exiting LDW (PCT)	Entering LDW (30 year; km2)	Entering LDW (PCT)
0.377	0.029	2.87	484,800	17%	447,200	56%	182,943	56%
0.094	0.007	0.72	1,449,000	50%	302,900	38%	136,698	42%
0.017	0.001	0.13	300,300	10%	50,800	6%	5,133	2%
0.004	0.000	0.03	684,200	23%	0.0	0.0	2,816	1%
			2,918,300	100%	800,900	100%	327,590	100%

Notes

e for surface area weighting:
for the Grain Size = Weighted Average Concentration * Fraction Surface
ı Mass

ıbout the calculation.
ınit kg of suspended sediment, the total contaminant mass (which equals
ıverage concentration for one kg) times fraction of surface area = the
nass for the particle size. Contaminant mass for each size class is smaller
ng mass.

ıce Area	
Exiting LDW (30 year; km2)	Exiting LDW (PCT)
168,755	85%
28,575	14%
868	0%
0	0%
198,199	100%

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Total						

Concentration Calculation

	Entering LDW (Concentration Units (e.g., ng/kg TEQ))		Exiting LDW (Concentration Units (e.g., ng/kg TEQ))	
Class	Calculation	Value	Calculation	Value
1a	Based on surface-area weighting	21	Same as entering the LDW	21
1b	Based on surface-area weighting	5.1	Same as entering the LDW	5.1
2	Based on surface-area weighting	0.9	Same as entering the LDW	0.9
3	Based on surface-area weighting	0.2	Same as entering the LDW	0.2
All (Suspended Sediment Sample)	Input	6.1	Mass-weighted Average	14
	QC (Mass-weighted Average)	6.1	Percent (Exiting/ Entering)	220%

Calculation

Equation to us
Concentration
Area / Fractior

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